Abstract

An unilocular ovary is often observed in the Fabaceae family. *Thermopsis turcica* Kit Tan, Vural & Küçüködük is an endemic, rare plant species in Turkey that is distinguished by its multi-carpellary apocarpous ovaries. No research has been conducted on the crossing of *Thermopsis turcica* with other species to date. *Vicia faba* L. (fababean) (2n = 12), which is one of the oldest crops used for human and animal consumption, and *Thermopsis turcica* (2n = 18) were selected to explore the possibility of increasing yield in edible crops by intergeneric crossing. When *Thermopsis turcica* was used as a male parent, pollen germination and pollen tube growth appeared to be normal and globular embryo formation was observed, but hybrid seeds aborted due to post-fertilization barriers. In contrast, in all crosses in which *Thermopsis turcica* was used as a maternal parent, an embryo was not obtained, and viability of the pistil did not exceed ten days after pollination. Also, in the samples left to free pollination, pistils died in a few days after anthers were removed just before pre-anthesis. Inability to obtain viable seeds by hybridization of *Vicia faba* and *Thermopsis turcica* should not be considered as a demonstration of complete incompatibility of the species in intergeneric crosses. The present report constitutes the first study on this issue.

Keywords: Embryo, intergeneric hybridization, pollen, *Thermopsis turcica*, *Vicia faba*